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ADSORPTION OF CYANIDE GAS BY FOODSTUFFS.

The question of the possibility of adsorption or absorption and retention of cyanide gas by foodstuffs exposed in the process of fumigation of vessels, warehouses, and similar places, to the extent that they are rendered dangerous or injurious to consumers, has arisen from time to time. This matter has recently been carefully investigated by the United States Public Health Service by the practical method of exposing foodstuffs to the fumes of cyanide gas and then feeding them to animals.

The foods selected were fresh bread, which, on account of its spongy structure, offers an excellent condition for adsorption of the gas; and milk, because it is the most available liquid food.

White mice were selected as the experimental animals.

The bread and milk were exposed to cyanide gas under a bell jar of 1.5 cubic feet capacity for periods varying from 2 to 22 hours. On removal of the food from the bell jar a part of the bread was soaked in the milk and immediately placed in a jar containing white mice. Another portion was exposed to the air for from 1 to 3 hours before being fed to mice. Generation of the cyanide gas was controlled by placing a live mouse in the bell jar and observing the symptoms and death of the animal.

The summary and comment of the officer who conducted the experiments are as follows:

"Bread and milk, when exposed to the cyanide gas in the concentration usually advised for fumigating tight compartments, did not absorb or adsorb sufficient cyanide to cause symptoms when fed to white mice.

"When a double amount of cyanide was used and the time of exposure was short, no symptoms were produced in the mice. When the double amount was used and the time of exposure was prolonged, symptoms and death of mice were produced if the bread and milk were offered to mice immediately on removal of the food from the fumigating chamber. After one or two hours' exposure of the food to the air no symptoms were produced.

"*Comment.*—It appears that the symptoms and death of the mice were caused by respiration of cyanide gas that was given off by the bread placed in the jar before sufficient time for aeration of the food had elapsed. No consumption of the bread by the mice which showed symptoms or death from cyanide poisoning was observed. On the contrary, in the experiments which gave no symptoms in mice, a variable amount of the bread was eaten. The absence of symptoms in mice receiving food that had been aerated for from 1 to 2 hours after removal from the fumigating chambers also suggests that a sufficient amount of cyanide fumes may be carried by the bread to cause symptoms if the food is used immediately."

The conclusion from these experiments is that the possibility of food poisoning occurring from food materials exposed to cyanide gas is extremely remote.